

REMARKS

Summary of Amendments

1. Claims 1 through 16 were originally presented in this application. Claims 17 through 20 were added by Applicants' amendment of November 1, 2004. Claims 3 and 7 were canceled without prejudice by Applicants' amendment of March 30, 2005. Claims 1, 9, 11, and 15 were canceled without prejudice in Applicants' amendment accompanying their Request for Continued Examination dated December 5, 2005. Claims 21, 22, and 23 were added in Applicants' June 23, 2006 amendment. Claim 24 was added and claims 18, 21, and 22 canceled in Applicants' amendment accompanying their second Request for Continued Examination, dated December 7, 2006.
2. Claims 2, 17, 21, 22, and 24 are canceled without prejudice in this paper. No claims have been added. Claims 4, 5, 19, and 20 have been amended, as described in more detail below, to more particularly point out and distinctly claim the inventive material of the instant invention. Claims 4-6, 8, 10, 12-14, 16, 19, and 20 thus remain pending.

Election/Restriction

3. Claims 17 and 24 have been withdrawn by the Examiner as being directed to a non-elected invention. Applicants have canceled claims 17 and 24 in this paper. Applicants expressly reserve the right to file one or more divisional applications directed to the subject matter of these canceled claims.

Claim Rejections – 35 U.S.C. § 112

4. Claims 5, 6, 8, 13, 14, 16, 20, and 23 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Examiner states: "the phrase 'a concentration of cobalt at the cutting surface of the cemented carbide base material is substantially equal to the bulk concentration' could not be found in the original disclosure."
5. Applicants have amended independent claims 5 and 20 to remove the above-noted phrase. Applicants therefore believe that the § 112, first paragraph, rejections of pending claims 5, 6, 8, 13, 14, 16, and 20 are overcome.
6. Applicants note that claim 5 has also been amended to include a film thickness in the range from 0.05 to 0.2 μm , and a maximum compressive stress of 1 GPa. Applicants respectfully submit that these amendments are supported by

Example 26 in Table II of the original specification, such that no new matter has been added. Applicants further submit that amended claim 5 is now distinct from the prior art of record. To the best of the Applicants' knowledge, the prior art is void of any disclosure of a surface-coated machining tool having the elements recited in claim 5, and in particular, a hard carbon film having a film thickness and a compressive stress in the recited ranges. Applicants therefore courteously urge that claim 5 should be held to be allowable.

Claim Rejections – Non-statutory Double Patenting

7. Claim 19 is rejected on the ground of non-statutory double patenting over claims 1, 7 and 9 of U.S. Pat. No. 6,881,475.
8. Applicants respectfully traverse this rejection to the extent that it is pertinent to claim 19 as amended. U.S. Pat. No. 6,881,475 recites an apparatus having an amorphous carbon film disposed over an interlayer selected from one of the elements of Groups IVa, Va, VIa, and IIb of the periodic table. The interlayer is disposed between the carbon film and the substrate. Claim 19 has been amended to recite:

a hard carbon thin film made up essentially of carbon atoms only, coated to a thickness in the range of 0.05 to 0.2 μm directly onto a surface of said cemented-carbide base material in a single layer.

The amendment is supported by the original specification, such that no new matter has been entered and no new search should be required. For example, Paragraph [0041] of the original specification states that the hard carbon film is formed "onto the surface of the base material." Paragraph [0044] further states in part that the "hard carbon thin film" is formed "on the surface of a foregoing WC-based cemented-carbide router cutter."

9. Applicants respectfully submit that independent claim 19, as amended, now distinguishes patentably over claims 1, 7, and 9 of U.S. Pat. No. 6,881,475. In particular, as amended, claim 19 now explicitly disclaims any intermediate layers. Applicants therefore believe that the double-patenting rejection is overcome.

Claim Rejections – 35 U.S.C. § 102

10. Claims 2 and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hitachi Tool (JP 07-188901 or 2000-308905), or Toshiba Tungalloy (JP 2001-234328). The Examiner states, "Hitachi Tool or Toshiba Tungalloy disclose the claimed coating on the claimed substrate."

11. Applicants respectfully traverse this rejection to the extent that it is pertinent to claim 4 as amended. Claim 4 has been amended to include the film thickness limitation of claim 2, and claim 2 has been canceled. Moreover, the upper thickness in the range has been reduced from 2 to 1.5 μm . The narrower thickness range is supported by Paragraph [0033] of the original specification, such that no new matter has been entered and no new search should be required. Applicants respectfully submit that independent claim 4 now distinguishes patentably over the prior art of record, and that the § 102(b) rejection of claim 4 is overcome.

Claim Rejections – 35 U.S.C. § 103

12. Claims 10 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hitachi Tool or Toshiba Tungalloy in view of Oskarsson (U.S. Pat. No. 6,228,139). Applicants respectfully submit that this ground of rejection is moot in view of the comments set forth above with respect to claim 4.
13. For the reasons set forth above, Applicants respectfully submit that independent claims 4, 5, 19, and 20, as amended, are now patentable. Independent claims 4, 5 being allowable, it follows that dependent claims 6, 8, 10, 12, 13, 14, and 16 must also be allowable.

Accordingly, Applicants courteously urge that this application is in condition for allowance. Reconsideration and withdrawal of the rejections is requested. Favorable action by the Examiner at an early date is solicited.

Respectfully submitted,

May 22, 2007

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